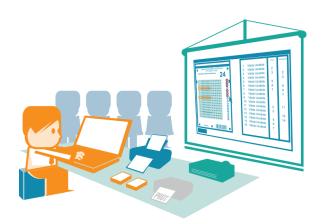# Questions and answers on ballot scanning

Question: **What are the principles of operation of the system of optical scanning of ballots?**

Answer: The basic principle of operation of the system of counting of votes and determination of results is very simple. In polling stations, scanning, recognition and counting of all ballots is supervised by people– polling station commissions and observers. Usual office equipment is used in this process– a computer, scanner, printer, projector and the vote counting programme. A projector is required for a better presentation of the counting process and everything what is happening on the computer screen, so that all commission members and observers could fully and conveniently follow the process. In some cases, a projector is replaced by a TV-set or an additional large monitor. The process is organized in such a way that one person manages everything, the others only observe.

The programme records all marks which voters have made on ballots, lights them up in a definite colour and displays graphically. The process is made automatic; it is unified and visualized so that each step, each operation of the programme would be easily understandable for everybody (without knowing higher mathematics, just arithmetic). Besides those who are present have a possibility to control the process:

- it is possible to stop the process at any moment to review the particular situation more thoroughly – to view a ballot paper, a mark on it and take a decision;

- It is possible to change the decisions made by the system – valid, invalid;

- It is possible to review the history of the process, for example, on a request of an observer, including, navigation backwards, forward by stages, each ballot paper and mark for candidates.

All activities performed by the commission are also recorded. Ambiguous situations are identified with a help of the preventive procedure of the logical data control, and a superior commission is promptly informed about these situations. When vote counting is concluded

in a polling station, a vote counting protocol is created automatically, all data are immediately sent to the centre and the results are automatically published on the Internet on the webpage. Thus, election results are made publicly available maximally fast.

Election observers, candidates and representatives of mass media have a possibility to review in detail the history of the vote counting process of any polling station. Thus, traceability of vote counting and accuracy of results is completely ensured; transparency of the whole process is increased essentially, as well. It eliminates any complaints or suspicion, but any objections may be considered in a peaceful way, without aggression.

From a technical point of view, the scanning process, recognition of ballots and vote counting is carried out by using recognition programmes and technologies developed by the company „SOAAR" particularly for automation of vote counting and the electoral process. Usual office scanners with an automatic document feeder are used for scanning ballots.

Question: What kind of software and material technical equipment (hardware) is used for system operation?

Answer: Standard office equipment is used in vote counting in polling stations and determination of election results for the whole country.

A following set of equipment and programmes is used to carry out the process in polling stations:

- a computer running Microsoft Windows XP/7/8/8.1 operating system;
- a scanner having an automatic document feeder and supporting TWAIN protocol;
- a printer;
- a projector and screen;
  (a TV-set or large monitor may also be used);
- the Internet;
- the programme "BALSIS".

In the other structures – city and municipality commissions, the CEC– a following set of equipment and programmes is used:

- a computer running Microsoft Windows XP/7/8/8.1 operating system;
- a printer;
- the Internet;
- the programme BALSIS.

The server part of the system "BALSIS" is situated in several data centres on the servers of the system Microsoft Windows.

Office equipment which is available for local governments and used daily to accomplish the basic goals of local governments is deployed in ensuring elections. As polling stations are established in local government institutions– cultural centres, schools, libraries, centres for social services, – the technical equipment, which institutions have already, is deployed, and for the election period, it is delivered to polling stations from less busy points. After election, office equipment is returned back to the respective institution. No additional equipment is needed for polling stations and is not purchased.

The current version of the system BALSIS is created for the use in Microsoft Windows environment. The new version is designed and developed for the Internet environment.

The system BALSIS is used not only for determination of results in polling stations, effective and centralized data collection, automatic publishing of results on the Internet, but also for such processes as preparation of documents of candidate lists, electronic submission of candidate lists, automatic preparation of mock-ups of ballots etc.

Question: Which companies produce the equipment which may be used for ballot scanning and vote counting?

Answer: The producers of the equipment used in ensuring elections are as follows:

- Very different computers, starting from custom built ones and ending with computers of different brands – HP, Dell, Lenovo, Samsung, Acer, Toshiba etc., with different operating systems Microsoft Windows.
- Scanners with an automatic document feeder, mainly models produced by Avision– AV186+, AV220D2+, AV620N.
- Very different printers, almost all the available ones.
- Very different projectors and screens, almost all the available ones.

Question: What is the system protection and what are the possible risks of falsification when using the system?

Answer: The newest means of protection are used for protection of the system, according the current methods and best practice. The necessary tests of the system are used before each election, and one of them is the audit of physical security of the system.

It is impossible to falsify data or results in the system anonymously and stay unpunished. The human factor or effect on the data of the system is immediately disclosed with a help of the procedure of the preventive test, control and analyses.

Question: **What are expenses for purchase of equipment and maintenance of the system?**

Answer: As the technical equipment which is available for local governments and used daily to accomplish the basic goals of local governments is deployed, expenses for the purchase of equipment is 0 EUR. No additional equipment is needed for polling stations and is not purchased.

Expenses for the attendance and technical maintenance of the system form about 20% of the price of the system annually.